



MARYLAND ASSOCIATION OF MUNICIPAL WASTEWATER AGENCIES, INC.

**COMMENTS OF THE
MARYLAND ASSOCIATION OF MUNICIPAL WASTEWATER AGENCIES, INC.
REGARDING U.S. EPA'S DRAFT CHESAPEAKE BAY TMDL AND
MARYLAND'S DRAFT CHESAPEAKE BAY TMDL PHASE I WIP**

NOVEMBER 5, 2010

I. INTRODUCTION & EXECUTIVE SUMMARY

On September 1, 2010, the State of Maryland ("State" or "Maryland") issued a Phase I Watershed Implementation Plan for the Chesapeake Bay Total Maximum Daily Load ("Draft WIP").¹ On September 22, 2010, the United States Environmental Protection Agency ("EPA") issued a notice of availability and request for public review and comment in the *Federal Register* regarding the development of a total maximum daily load for the Chesapeake Bay Watershed. On September 24, 2010, EPA issued a Draft Chesapeake Bay Total Maximum Daily Load ("Draft TMDL"). The Maryland Association of Municipal Wastewater Agencies, Inc. ("MAMWA") respectfully submits the following comments in response to the EPA *Federal Register* Notice and Draft TMDL and Maryland's Draft WIP.

MAMWA is a statewide association that includes the owners and operators throughout Maryland of municipal wastewater treatment plants ("WWTPs"), which the Clean Water Act refers to as publicly owned treatment works ("POTWs"). Many MAMWA members' facilities clean and discharge highly treated wastewater within the Chesapeake Bay watershed pursuant to state-issued National Pollutant Discharge Elimination System ("NPDES") permits. As owners and operators of highly-regulated pollutant removing facilities, MAMWA's members have a direct stake in the development of the Bay TMDL and in its implementation. Indeed, MAMWA members are currently in the midst of a treatment upgrade program with an investment of approximately \$1.5 billion to implement the Bay TMDL.

As point source dischargers to the Chesapeake Bay, MAMWA's members have a strong interest in the development of the Bay TMDL and in its implementation at the state and local level. Maryland's POTWs have dramatically reduced their loads from 1985 levels – more than any other sector contributing nutrients to the Bay. As EPA and Maryland move forward with the important task of finalizing these groundbreaking documents, we ask that you consider MAMWA's views, concerns and recommendations.

MAMWA previously submitted comments (on December 18, 2009) in response to EPA's September 19, 2009 Notice and Initial Request for Public Input regarding the development of a

¹ On September 24, 2010, Maryland issued a corrected Draft WIP.

Chesapeake Bay TMDL.² In addition to laying out a number of Guiding Principles MAMWA felt strongly must be considered by EPA as it developed the TMDL, MAMWA also commented extensively on the need for regulatory stability for POTWs (*i.e.*, retaining the existing approach to POTW nutrient upgrades) and made a number of recommendations regarding the development of the TMDL.

Generally speaking, EPA's Draft TMDL and Maryland's Draft WIP appropriately are consistent with and meet MAMWA's request for regulatory stability relative to the Tributary Strategies.³ MAMWA supports this aspect of both the Draft TMDL and Draft WIP. However, MAMWA has noted a few issues in both documents that warrant further comment and revisions prior to the issuance of a final TMDL and WIP. Our comments regarding these issues are set forth below.

II. MARYLAND'S DRAFT WIP

A. MAMWA Supports the State's Approach to Major Municipal Treatment Plants

The State has determined that it will continue Enhanced Nutrient Removal ("ENR") upgrades at 67 of the State's largest POTWs.⁴ According to the Draft WIP, "[a]t the current rate of implementation, 24 plants will be operational by June 30, 2011, accounting for an estimated 780,000 lbs/year reduction in nitrogen. To date, 14 plants have been completed; 17 plants are in construction; 22 plants are in design, and 14 plants are in planning."⁵

Maryland's Chesapeake Bay Tributary Strategy Statewide Implementation Plan (Jan. 24, 2008) ("Tributary Strategy Implementation Plan") addresses major WWTPs as follows:

Significant wastewater treatment plants are those with design* capacity of 500,000 gallons per day or greater. Annual nutrient load caps are based on an annual average concentration of 4.0 mg/l total nitrogen and 0.3 mg/l total phosphorus and the approved design capacity of the plant. The combined flow of these facilities comprises more than 95% of the total sewage flow generated in Maryland.⁶

² MAMWA's December 18, 2009 Comments are incorporated by reference to these comments. Additionally, MAMWA incorporates by reference all EPA files or documents, no matter the form, and all materials from EPA Chesapeake Bay committees or subcommittees pertaining to Bay clean-up efforts.

³ Draft TMDL ES-8; 8-13; Draft WIP at ES-14; 5-19.

⁴ Draft WIP at ES-14; 5-19.

⁵ Draft WIP at 5-19.

⁶ Tributary Strategy Implementation Plan at 7. Design capacity is defined to mean: "(1) A discharge permit was issued based on the plant capacity, or the Maryland Department of the Environment (MDE) issued a letter to the jurisdiction with design effluent limits based on the new capacity as of April 30, 2003; (2) Planned capacity was either consistent with the MDE-approved County Water and Sewer Plan as of April 30, 2003, or shown in the locally-adopted Water and Sewer Plan Update or Amendment to the County Water and Sewer Plan, which were under review by MDE as of April 30, 2003 and subsequently approved by MDE."

This approach is incorporated into the Draft TMDL and Draft WIP, and MAMWA supports this aspect of both drafts. As MAMWA explained in its December 2009 Comments, there are compelling reasons to continue and adopt this particular approach in Maryland and not consider attempting to reduce POTW wasteload allocations further.

First, the POTW wasteload allocations are set at or very near limit-of-technology levels. For example, most plants will have reduced from approximately 20 to 30 mg/L total nitrogen to less than 4 mg/L, and from approximately 6 to 10 mg/L total phosphorus to less than 0.3 mg/L.⁷ This also represents a dramatic reduction from 1985 levels – more than any other sector contributing nutrients to the Bay – and this will continue as ENR projects continue to be constructed in accordance with the Point Source Strategy.

Second, an estimated total investment of \$1.5 billion has very recently been made, or is in the process of being made, to design and construct specific ENR capital projects to implement the proposed POTW WLAs. This is above and beyond earlier upgrades to BNR levels. Any deviation at this late date would be terribly disruptive and wasteful of current efforts and investment.

Third, because the proposed POTW WLAs are so stringent, there is limited capacity available to concentrate smart growth in existing urban areas. What limited amount that does exist must be preserved to enable smart growth⁸ and economic development in the State.⁹

Fourth, under the proposed POTW WLAs, POTWs have very little ability to design and construct a facility capable of producing a regulatory compliance “cushion” to help ensure compliance despite operational variability.

Fifth, also on the subject of compliance, several upgraded POTWs in the State are already struggling to comply with ENR treatment levels. None have experience operating in compliance with such limits at a fully loaded facility. Time is required to determine how successful these newly upgraded facilities will be in meeting ENR treatment levels under various conditions.

⁷ Additionally, according to EPA’s model runs, wastewater represented a relatively small percentage of the average annual nitrogen and phosphorus load to the Chesapeake Bay. Under the critical 3-year condition for the TMDL (1993-1995), wastewater would represent an even lower proportion of the nutrient load with existing controls.

⁸ POTWs play a critical role in enabling economic development and smart growth. POTWs are far superior in nitrogen removal to even the most efficient on-site disposal system option. Nutrient removing on-site systems are estimated to deliver approximately 20 mg/L in total nitrogen as compared to 3 mg/L for POTWs at ENR levels. The math is compelling. Allowing for development on POTW systems in already developed areas is far preferable for the health of the Bay to developing in greenfields, using septic systems.

⁹ Adequate POTW allocations based upon adequate levels of sewer capacity is a critical part of future economic growth.

Sixth, any marginal reductions in POTW WLAs would not be cost-effective (due to markedly higher costs and the obviously diminishing benefits compared to the current program to reach ENR levels). Further, those scant reduction benefits would certainly be accompanied by adverse environmental impacts due to increased chemical production, transportation and use; increased energy production and use; and increased greenhouse gas emissions.

Lastly, although the State has been working to establish a nutrient trading program, offsets are not widely available. Nonpoint source offset trading is in its infancy Bay-wide. Even if it were viable – and MAMWA sees no clear evidence that offsetting is a viable strategy for acquiring additional nutrient allocations – it would certainly be extremely expensive. In the absence of a reliable trading program with reasonable costs, it is imperative that EPA and the State maintain sufficient POTW WLAs to serve future growth.

We appreciate that EPA generally agrees with MAMWA's position on the critical issue of regulatory stability for POTWs relative to their recently-established WLAs:

...the large scale public investments (estimated at over \$4 billion) that are now being carried out throughout the watershed to upgrade and reduce nutrient discharges from point sources. **A stable regulatory environment is a priority need for these facilities and a matter of fiduciary responsibility and public trust.** Therefore, EPA considers requiring further point source upgrades to the limits of technology as an option of last resort and is avoidable if the Bay partners use our creative energies to deliver sufficient nonpoint pollutant reduction commitments.¹⁰

Despite MAMWA's support for this approach, we must note that funding has been and remains a critical issue for ENR upgrades. The State's Draft WIP recognizes this critical issue:

Upgrade of the major wastewater treatment plants is funded by Maryland's Bay Restoration Fund ["BRF"]. Full funding is available for implementation of the 2011 Milestone, but a funding gap is projected after 2012. Maryland's Bay Restoration Fund Advisory Committee has projected a deficit beginning in FY 2012 and has begun developing options to close this deficit.¹¹

As the State considers how to address this funding shortfall, MAMWA urges the State to do so in a manner that fully funds all of the 67 major ENR projects.

¹⁰ Letter dated Sept. 11, 2008, from Donald S. Welsh, EPA Region III, to John Griffin, MDNR, Enclosure A at 4 (emphasis added).

¹¹ Draft WIP at 5-19.

B. MAMWA Opposes Maryland's Proposed Treatment of the Largest Minor Municipal Treatment Plants

In order to fill the gap between current programs (capacities) and the State's target loadings for nutrients and sediment, Maryland has raised the following potential gap-filling measure: "Evaluate the feasibility of upgrading five of the largest minor municipal WWTPs to ENR treatment by 2017."¹²

Although the State has not named particular plants that it is considering for potentially mandatory upgrades, it has suggested that it would select plants based upon "load capacity needs, community interest, technical feasibility and cost-effectiveness." The State estimates that the loading reduction associated with this option would be about 45,000 pounds per year of nitrogen.¹³ The cost would be approximately \$58 million.¹⁴

Mandating upgrades for minor municipal WWTPs would be a significant departure from the current Point Source Strategy, which addresses non-significant (small) WWTPs as follows:

Non-significant wastewater treatment plants are those with design capacity of less than 500,000 gallons per day. Annual nutrient loads are based on design capacity or projected 2020 flow, whichever is less, and concentration of 18 mg/l total nitrogen and 3 mg/l total phosphorus. The 2020 projected flows were based on the county growth rates provided by the Maryland Department of Planning. Expanding non-significant facilities cannot exceed 6,100 lbs/year in nitrogen and 457 lbs/year in phosphorus.¹⁵

In other words, unless a facility is expanding, it is not required to achieve WLAs equivalent to ENR concentration levels.

Given this background, MAMWA opposes the concept of upgrading non-expanding, non-significant municipal WWTPs for two very practical reasons.

First, as noted above, the BRF is facing a massive shortfall beginning in 2012. Thus, the State lacks the funding for the State's share of ENR upgrades at the larger "significant" WWTPs, much less at the contemplated five minor plants, and in this respect the proposal is not viable.

Second, the State has not provided any evidence that these upgrades would be cost-effective as compared to other management options. As MAMWA noted in its December Comments, cost-

¹² Draft WIP at 5-21.

¹³ Draft WIP at 5-21.

¹⁴ Draft WIP at ES-14.

¹⁵ Tributary Strategy Implementation Plan at 7.

effectiveness should be one of the guiding principles for developing the TMDL. This is equally true for the State's Draft WIP. The limited available funding for the Bay restoration should be invested wisely. The State appropriately excluded the non-significant WWTPs as non-significant, and that prior decision should be upheld in the TMDL and WIP. Instead, MAMWA encourages the State to consider other measures with lower costs and more ancillary environmental benefits¹⁶. Further, MAMWA recommends that any future consideration of ENR-level WLAs and/or upgrades for non-significant plants include an evaluation of comparative cost data of various nutrient control options and an environmental review.¹⁷

C. MAMWA Requests Representation at P-Index Discussions

The State has suggested that it will be "...convening a technical workshop, hosted by the University of Maryland's College of Agriculture and Natural Resources" to discuss "...relevant recent scientific advances, evaluation of the performance of the current P-Index, and evaluation of alternative approaches for revision of the P-Index."¹⁸

Although MAMWA can only comment broadly on this general concept of revising the P-index because the work to potentially revise the index has not begun, this is an important issue for MAMWA members who manage biosolids under the EPA and State-approved method of land application. MAMWA requests the opportunity to participate in the technical workshop mentioned and believe the MAMWA membership can offer expertise with regard to the referenced issues.

In addition, MAMWA believes the WIP should include a strategy to promote and sustain biosolids land application, which is certainly environmentally beneficial as compared to the alternative of inorganic chemical fertilizer use for the following reasons:

- Biosolids-based nutrients are released more slowly because they are not as soluble as nutrients found in chemical fertilizers.

¹⁶ Ancillary benefits include extra societal benefits associated with requiring certain source sectors to further reduce their discharges. Some actions—like planting cover crops—can provide reductions and additional positive environmental and aesthetic impacts. EPA and Maryland should select these types of clean-up actions over others because of their ancillary benefits.

¹⁷ On a related matter, MAMWA believes that there is a typo in the Draft WIP with regard to how Maryland established allocations for all non-significant municipal WWTPs. Maryland has said that "Maryland has identified aggregate target loads of nutrients for two levels of "non-significant" municipal treatment plants: For the plants with design flows of 0.1-0.49 MGD, target loads were assigned based on projected 2020 discharge flows and effluent permit concentration limits of 8 mg/l TN and 2 mg/l TP. For plants with design flows less than 0.1 MGD, loads were set based on 2020 projected flows and no upgrades for nutrient reductions." Draft WIP at 8-9. As noted above, the current Tributary Strategy approach for minors is based upon concentrations of 18 and 3, with no requirement for upgrades until the plant expands. As MAMWA understands it, Maryland has appropriately allocated based upon the TS approach, but has incorrectly stated the concentrations in the Draft WIP. MAMWA asks that Maryland correct this typographical error before it finalizes its WIP.

¹⁸ Draft WIP at 5-49.

- Biosolids land application includes many safeguards including mandatory setbacks from water resources, soil conservation and soil erosion control practices, nutrient management requirements, and record keeping and reporting requirements. These safeguards exceed those required for chemical fertilizer or manure applications.
- Biosolids land application is carefully regulated at the federal and state level and subject to enforcement in the event of noncompliance.

III. EPA'S DRAFT TMDL

MAMWA incorporates by reference as if fully set forth below the comments in Section II A and B above, which pertain to POTW WLAs. In addition, MAMWA offers the following comments on the Draft TMDL.

A. EPA's Use of the 1993-1995 Critical Period Is Appropriate

MAMWA concurs with EPA's decision to use 1993-95 as the critical period for the nutrient TMDL. This period had relatively high winter-spring inflows, but not so extreme that the TMDL would be based on an extremely rare hydrologic event. A TMDL based on 1993-95 hydrology will be protective under the great majority of hydrologic conditions.

B. EPA's Use of an Implicit Margin of Safety Is Appropriate

MAMWA concurs with EPA's decision to use an implicit margin of safety for development of the TMDL. The Draft TMDL depends on a very complex framework of water quality standards, assessment methodologies, and models to derive allocations, each with its own environmental conservatism. This combined framework results in a sum level of conservatism reflecting all of the contributing sources of conservatism. For example, the water quality criteria themselves are conservative, as stated in the original criteria document (EPA CBPO, 2003):

...these criteria were developed with conservative (protective) assumptions, allowing a small percentage of circumstances in which the criteria may be exceeded will still fully protect the tidal-water designated uses.

The assessment methodology includes several conservative elements, such as the fact that any exceedance of the cumulative frequency distribution ("CFD") reference curve is considered a potential violation, even if the segment being assessed has a lower total violation rate in time-space (*i.e.*, area under the CFD curve) than the reference condition. The use of the default 10-percent reference curve for some criteria is also conservative in that Bay sites that are believed to be complying with standards are being found not to be in compliance based on conservative assumptions of the TMDL. The fact that the TMDL is developed for a critical 3-year condition, instead of average conditions, provides another layer of conservatism.

Furthermore, although the model is not designed to be explicitly conservative, a review of the UMD/MAWP Year 1 and Year 2 BMP efficiency reports revealed many examples of where conservatively low BMP efficiencies were selected for use with the Phase 5 watershed model. For example:

BMP	Conservative Assumption from Year 1 & 2 BMP Efficiency Reports
Riparian buffers	“... a 20% reduction in the effectiveness values is applied to efficiencies from literature sources...”
Urban wet ponds and wetlands	“The uncertainty in how improper maintenance will adjust BMP efficiencies supports the recommendation to use a more conservative percent removal estimate.”
Dry detention basins	“...effectiveness estimates for Dry Detention Ponds/Basins and Hydrodynamic Structures were not changed based on the recommendation of the USWG. However...the available literature does suggest somewhat higher removal rates...”
Bioretention	“The 10% TN concentration reduction [is] a conservative judgment...”
Vegetated open channel	“A more conservative value from the CWP estimate was selected...”
Permeable pavement	“...a conservative approach is taken to estimating permeable pavement and paver performance.”
Infiltration basins and trenches	“...a 15% reduction in TN is used here for systems with sand or vegetation, and 0% TN removal for systems without sand and/or vegetation, to be consistent with the other infiltration and filtration BMPs in this report and to be conservative.”
Off-stream watering	“...we proposed values close to the conservative literature base...”

The Bay Program Office has identified specific sources of environmental conservatism that are built into the analysis that justify an implicit margin of safety for the TMDL:

- The fact that allocations to achieve D.O. standards are driven by a relatively small area in the Bay (segment CB4), and that most of the rest of the Bay system would achieve D.O. standards under higher nutrient loading levels.
- The fact that 100% of point sources are assumed in model scenarios to operate at their maximum permissible loading levels, which is highly unlikely to ever occur.

Given the multiple layers of conservatism in the TMDL allocation process, MAMWA supports EPA’s decision to use an implicit margin of safety.

C. EPA's Refusal to Consider Essential Equivalency in Target Loads Is Unreasonable

In the determination of basin nutrient loadings (190 TN and 12.7 TP) EPA utilized the so-called "1% rule" to determine compliance (with the exception of certain problem segments). Bell (2010b) performed a statistical "power analysis" to evaluate the minimum difference in D.O. that would be statistically detectable in the Chesapeake Bay Monitoring Program. Based on the results of this analysis, segments that are close to attainment would require spatial D.O. violation rates that differ by 4% or more before they would be statistically distinguished from one another. The management implications are that Bay model D.O. scenario results with differences less than 4% should be considered "essentially equivalent." However, this is not recognized in the Draft TMDL.

Based on the above referenced "power analysis," the scenario associated with "Target Load Option A" (200 mpy TN and 15 mpy TP) produces results that are "essentially equivalent" to EPA's recommended basin target loads in the Draft TMDL of 190 mpy TN and 12.7 mpy TP (Bell, 2010a). At this level of nutrient loading the key Bay segments of CB4MH, CB5MH, MD5MH, and VA5MH are predicted to be in attainment or be within 2% of attainment.

It is recognized that Target Load Option A would not immediately address attainment in some of the side segments; however, effectively addressing these side segments would require separate, locally-oriented modeling analysis with tools better adapted to evaluating local conditions.

The "Target Load Option A" TN and TP targets to comply with D.O. standards in the main bay is essentially equivalent to the more stringent and costly-to-attain cap loads associated with 190 TN and 12.7 TP in the TMDL. Therefore, it would be unreasonable for the final TMDL to opt for the higher cost alternative of these two equivalent compliance scenarios.

D. EPA's Approach to Modeled BMPs Should Be Improved

EPA's decision to model BMPs for forward-looking management scenarios based upon historically-average BMP management is inadequate. It is well known that historically many nonpoint source BMPs have not been accompanied by programs or methods to ensure proper design, installation, operation, or maintenance. It is reasonable that model calibration scenarios should assume, at a minimum, historical "average" management conditions. Any other approach—including the use of conservatively low values—would make the model less accurate and force management decisions that may be more costly and/or provide less benefit. However, it is neither necessary nor reasonable for forward-looking management scenarios to retain the assumption of historical averages, *i.e.*, simply accept poor performance of the past. Rather, improvements in the way BMPs are installed, operated, and maintained should be considered and incorporated in the TMDL and underlying modeling. In other words, modeled TMDL allocations scenarios should reflect the manner in which BMPs *should* be designed, operated, and maintained, not necessarily how they have historically been managed.

One example of where EPA and the Bay States have assumed a high level of nutrient removal performance is for wastewater treatment plants. The performance expected and used in the

model is based on properly installed, operated and maintained facilities. The standard for performance relative to design of other nutrient removal strategies (e.g., BMPs, filter feeders, etc.) used in the Bay model should not be allowed to drop to a lesser standard.

For these reasons, MAMWA requests that EPA revise its modeling approach to incorporate this suggestion.

E. EPA Should Revise the Discussion of Daily Loads

EPA has not appropriately addressed daily loads in the Bay TMDL. Existing Chesapeake Bay programs were built on the concept of annual load goals. A correct approach on this point is critical for cost-effectiveness and attainability.

It is well established that daily nutrient load variations are environmentally insignificant to the Bay. Furthermore, EPA agreed in a 2004 Memorandum (cited by EPA at Draft TDML, 4-9) that *annual* limits are appropriate in CWA permitting. EPA has stated that:

- The exposure period of concern for nutrient loadings to the Bay and its tidal tributaries is very long;
- The area of concern is far-afield (as opposed to the immediate vicinity of the discharge); and
- The average pollutant load rather than the maximum pollutant load is of concern.

Based on modeling, EPA concluded that “Chesapeake Bay and its tidal tributaries in effect integrate variable point source monthly loads over time, so that as long as a particular annual total load of nitrogen and phosphorous is met, constant or variable intra-annual load variation from individual point sources has no effect on water quality in the main bay.”¹⁹ According to EPA, “[e]ven a simply steady-state model for permit development such as dividing the annual limit by 12 and establishing that value as the monthly limit is therefore not appropriate.”²⁰

EPA has repeated its 2004 message in the Draft TMDL:

Numerous Chesapeake studies show that annually based wastewater treatment nutrient reductions are sufficient to protect Chesapeake Bay water quality (Linker 2003, 2005). The seasonal aspects of the jurisdictions’ Chesapeake Bay WQS are due to the presence of the living resources being protected, but annual nutrient and sediment load reductions are most important to achieve and maintain the seasonal water quality criteria, some of which span multiple seasons—open-water, shallow-water bay grass, migratory spawning and nursery...²¹

¹⁹ 2004 Memorandum at 3.

²⁰ *Id.* at 5.

²¹ Bay TMDL at 6-6.

In its December 2009 Comments, MAMWA made the following recommendations about how to reflect a temporal period in the Bay TMDL:

- **Select a Large Geographic Scale** - The scale of any “daily” load component of a TMDL should be a Bay watershed scale, rather than at any smaller scale such as a Tributary scale.
- **Set the Daily Load Conservatively High** - Any “daily” load component should include a large percentage of the annual load, such that the daily load would never be a limiting factor for TMDL compliance, even under short-term extreme hydrological conditions.
- **Document the Key Assumptions About Daily and Annual Loads** - 40 CFR 122.44(d)(1)(vii)(B) requires that: “[e]ffluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7.” Therefore, for completeness and clarity for future permitting, the TMDL should document the following WLA assumptions consistent with the 2004 Memorandum: (A) daily WLAs are essentially meaningless in this context and will not be used for permitting purposes, and (B) permit limits for POTWs and industrial discharges will be annual limits to meet annual waste loads. The 2004 Memorandum should be referenced in and incorporated into the TMDL.

In its Draft TMDL, EPA established maximum daily loads for each of the 92 impaired segments in the TMDL, and provided an explanation for how the reader could calculate the seasonal maximum daily load “for any segment, WLA, or LA of interest.”²² EPA also provided annual WLAs and LAs in Draft Appendix Q.

MAMWA disagrees with EPA’s decision to set daily loads at an impaired segment level, and to establish daily loads based upon the 95% percentile of daily loads.²³ This means that, even if the TMDL were fully achieved, and the modeling has perfectly captured flows, the daily maximum load would be violated 5% of the time, or approximately one day out of every twenty.

This methodology would not be as critical if EPA had clearly stated that it would not be using daily WLAs for permitting or for POTWs compliance purposes. Although MAMWA appreciates EPA’s reference to the 2004 Memorandum, and the language quoted above from Draft TMDL at 6-6, EPA has not clearly addressed the application of daily loads to POTW dischargers. This is highly problematic, as POTW facilities have been designed to ensure compliance with annual loads. Considerations of treatment plant design and capital and operating costs, including seasonal variation in performance of wastewater technology, support an annual rather than daily approach with respect to the point source components of the TMDL.

²² Draft TMDL at 6-18.

²³ Draft TMDL at 6-18.

For these reasons, EPA should revise its Draft TMDL to clearly state that daily loads will not be the yardstick against which POTW compliance is measured. This should be clear in the body of the TMDL itself (e.g., in Section 6) and in all appendices that reference daily loads.²⁴

F. EPA's Should Revise the TMDL Based on Consideration of Filter Feeders and Alternative Technologies in the Bay TMDL

In its December 2009 Comments, MAMWA made recommendations regarding how EPA should include filter feeders in the Bay TMDL. MAMWA explained that various studies and the Bay Program's own modeling efforts have demonstrated that increase biomass of oysters and menhaden have the potential to cause measureable improvements in dissolved oxygen, water clarity, and chlorophyll-*a*. Improvements in these living resources are among the Bay partner's most important goals, and their water quality benefits should be fully considered in the TMDL process. MAMWA suggested that EPA either (a) adopt nutrient and sediment loading caps that implicitly consider the benefits of filter feeder improvements; (2) explicitly assign a certain proportion of the required load reduction to filter feeder restoration; or (3) allow filter feeder restoration to result in the availability of nutrient credits to offset other sources.

EPA ignored these recommendations in the Draft TMDL, choosing instead to note that:

EPA is basing the TMDL on the current assimilative capacity of filter feeders at existing populations built into the calibration of the oyster filter feeding submodel...Potential future changes would not be accounted for in the Bay TMDL. If future monitoring data indicate an increase in the filter feeder population, the appropriate jurisdiction's 2-year milestones delivered load reductions can be adjusted accordingly....²⁵

EPA's decision is inappropriate. Oyster farming and aquaculture show real promise. In mid-October, 2010, several news outlets reported the formation of a new oyster cooperative in Virginia, the Oyster Company of Virginia. A private company formed a cooperative that will allow Virginia's watermen to lease bottomland from Virginia, plant, grow, harvest and sell oysters. Profits will be plowed back to fuel the endeavor. In addition, Maryland has been very aggressively approaching aquaculture. According to a recent AP story, Maryland Governor O'Malley recently announced \$2.2 billion in loans for oyster aquaculture in FY11. The State's efforts are a follow-up to the development of a oyster restoration plan. Efforts in Virginia and

²⁴ On a related note, in Table Q-1, EPA's Draft TMDL appears to provide individual WLAs for non-significant WWTPs (including POTWs). This is in contrast to Maryland's Draft WIP (aggregates WLAs for non-significant WWTPs). MAMWA strongly supports the State's approach. These smaller plants are not being required to upgrade (see discussion above). EPA should correct its TMDL to provide aggregate loadings. Furthermore, EPA should make it clear in the text and in all appendices that reference loadings that insignificant WWTPs are being aggregated for purposes of the TMDL, but that they are not expected to upgrade to attain such loadings, nor should their permits reflect any individual loading.

²⁵ Draft TMDL at 10-8.

Maryland are not hypothetical—they are actually happening on the ground. They should be considered as a part of this TMDL.²⁶

In addition to filter feeders, MAMWA also recommended that some portion of future reductions needed to meet water quality goals should be assigned to technological advancements, such as the Algal Turf Scrubber[®] (“ATS”) and floating wetlands. Although MAMWA acknowledged these alternative technologies may not be ready for full deployment Bay-wide, MAMWA recommended that EPA acknowledge and encourage their possible future use in the Bay TMDL, including assisting with funding, to encourage research and development. Spending money on research that could make a major dent in clean-up efforts is far preferable to spending money to squeeze minimal reductions from POTW loadings.

EPA also ignored these recommendations in the Draft TMDL. EPA has established an extraordinarily aggressive approach in its Draft TMDL, but it has not left any room for the natural progression of technology—technology that could greatly assist in making nutrient and sediment reductions in lieu of expensive additional POTW upgrades.

For these reasons, MAMWA opposes these aspects of EPA’s Draft TMDL. EPA should revise its Draft TMDL to assign some portion of future reductions to filter feeders and alternative technologies.

G. EPA Should Reconsider Its Approach to Air Deposition Loads

EPA’s Chesapeake Bay Program Office has estimated that atmospheric sources account for about **one third** of the nitrogen that reaches the Bay, and the majority of this load originates from outside the Chesapeake Bay watershed. CBPO has developed airshed model scenarios representing various levels of atmospheric load reduction. Given the magnitude of the load derived from atmospheric sources, it is critical that these sources bear a proportional operational and financial responsibility for load reduction, and other sectors not be negatively impacted due to lack of atmospheric load reductions. This may require the CBPO to model and pursue regulatory strategies that are beyond existing or proposed regulations, including atmospheric controls specifically targeted toward water quality protection.

EPA’s Draft TMDL is lacking with regard to air deposition, and EPA is being complacent in aggressively chasing down additional reductions from this key source sector. EPA has lackadaisically accepted what other programs are planning for air pollution reductions as good enough. In addition, EPA’s decision to require Maryland’s citizens to clean up nutrients that are deposited on our land from states outside the Watershed begs for a better approach to source reductions.

²⁶ Note that, according to news reports, the cooperative “...plans to lobby state and federal officials to include their efforts in the “pollution diet” the U.S. Environmental Protection Agency is drafting for the bay.” Daily Press, Oct. 13, 2010.

H. EPA Should Give More Consideration to the Role of the Conowingo Dam

The Conowingo Dam is unlike any other dam in the Chesapeake Bay Watershed. Like a large quasi-BMP, the Dam removes on average approximately 3.5 million pounds of TP and 2 million tons of silt from the river annually. Without the Dam, this load would go directly into the upper Bay and once filled, the load would enter the Bay directly.

According to USGS estimates, the Dam will reach capacity around 2025, roughly at the same time the Bay States are expected to finish installing management measures to meet TMDL nutrient loadings. Once the Dam reaches capacity, the sediment load will likely be deposited in the Bay with serious consequences to Bay living resources, including benthics and grasses.

MAMWA urged in its December 2009 Comments that because of its unique qualities--location on the Susquehanna River (critically important in meeting Bay water quality goals), large size/span, and age (built in 1928), the Dam needs a management plan. MAMWA noted that although the problem can be addressed directly in the TMDL by saying that additional controls will be necessary in future years if the dam reaches capacity and is no longer effective at retaining sediments, such an approach would be misleading and irresponsible.

MAMWA also suggested that EPA and other federal agencies participate in the on-going regulatory process to re-license the Conowingo Dam at the Federal Energy Regulatory Commission ("FERC"), and echoed United States Senator Cardin's comment in the relicensing proceeding that "...a comprehensive analysis of the threat posed by these sediments is only a first step. Exelon, in coordination with the Chesapeake Bay Program Partnership, should develop an effective sediment management strategy that will control this pollution threat throughout the term of the licensing agreement at a minimum."

EPA's Draft TMDL does what MAMWA cautioned against—it delays a discussion of this important issue until the future. EPA has stated that the Bay TMDL "incorporates the current sediment-trapping capacity of the Conowingo Dam at 55 percent, with nitrogen and phosphorus trapping at 2 percent and 40 percent, respectively," but that if those capacities change based upon a review of future monitoring EPA would consider adjusting Pennsylvania, New York, and Maryland's two-year milestones.²⁷

MAMWA has no position on what the appropriate approach might be as the Conowingo Dam ages and loses capacity, but we do believe that this is a discussion EPA, the Bay States, and interested stakeholders should be having now. The looming threat that the Conowingo presents to all of our good efforts to reduce nutrients and sediments downstream is too important an issue to push off for a discussion on another day. EPA has erred in not considering it more carefully as a part of the development of the Draft TMDL.

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²⁷ Draft TMDL at 10-8.